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Highlights of Dairy 2007: *Salmonella*, *Listeria*, and *Campylobacter* on U.S. Dairy Operations, 1996–2007

In 2007, the National Animal Health Monitoring System (NAHMS) conducted a study of U.S. dairy operations. The Dairy 2007 study collected data on dairy health and management practices from 17 of the Nation's major dairy States.* These States represented 79.5 percent of U.S. dairy operations and 82.5 percent of U.S. dairy cows. The operations were divided into 3 herd-size categories based on the number of milk cows present: small (fewer than 100 cows), medium (100 to 499 cows), and large (500 or more cows).

The following highlights were excerpted from the report Dairy 2007: *Salmonella*, *Listeria*, and *Campylobacter* on U.S. Dairy Operations, 1996–2007. Released in April 2011, this report provides an in-depth look at the prevalence of food safety pathogens on U.S. dairy operations from 1996 to 2007, as identified from three NAHMS studies: Dairy 1996, Dairy 2002, and Dairy 2007.

- In 2007, the percentage of operations on which a milk filter tested positive for *Salmonella* (24.7 percent) was more than double the percentage of operations on which a bulk-tank milk sample tested positive (10.8 percent). Likewise, the percentage of operations on which a milk filter tested positive for any *Listeria* (28.3 percent) was more than three times

the percentage of operations on which a bulk-tank milk sample tested positive for any *Listeria* (9.0 percent). Milk filters were not tested in 2002 or 1996.

- The percentage of operations on which bulk-tank milk tested positive for *Salmonella* by RT-PCR was similar in 2002 and 2007 (11.9 and 10.8 percent, respectively). In addition, the percentage of operations on which bulk-tank milk tested positive for *Listeria monocytogenes* was similar in 2002 and 2007 (3.8 and 3.7 percent, respectively). Bulk-tank milk was not tested in 1996.
- The percentage of operations positive for *Salmonella* via fecal culture increased from 1996 to 2007. In 1996, 20.0 percent of operations had any *Salmonella*-positive cows compared with 30.9 percent of operations in 2002 and 39.7 percent in 2007. In 1996 and 2007, the percentage of cows positive for *Salmonella* was 5.4 and 13.7 percent, respectively.
- During the Dairy 1996, 2002, and 2007 studies, a higher percentage of operations with 500 or more cows were *Salmonella* positive than operations with fewer than 100 cows.

* States

California, Idaho, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New Mexico, New York, Ohio, Pennsylvania, Texas, Vermont, Virginia, Washington, and Wisconsin

- The percentage of *Salmonella* isolates resistant to at least one antimicrobial decreased from 2002 to 2007 (17.7 and 3.4 percent, respectively). Similarly, for any specific antimicrobial to which resistance was observed, a lower percentage of isolates were resistant in 2007 than in 2002.
- In the Dairy 1996, 2002, and 2007 studies, nearly all operations had at least one cow that was shedding *Campylobacter* (100, 97.9, and 92.6 percent of operations, respectively).
- In 2002 and 2007, less than 5 percent of *C. jejuni* isolates were resistant to any single antimicrobial tested, with the exception of tetracycline. In 2007, 62.4 percent of *C. jejuni* isolates were resistant to tetracycline compared with 47.5 percent in 2002.

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